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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 10/743,239 | 12/22/2003 | David Bruce Hall | 134081-1 | 6977 |

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GENERAL ELECTRIC COMPANY
GLOBAL RESEARCH
PATENT DOCKET RM. BLDG. K1-4A59
NISKAYUNA, NY 12309

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| EXAMINER |
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FORTUNA, ANA M

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| ART UNIT | PAPER NUMBER |
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1723

| SHORTENED STATUTORY PERIOD OF RESPONSE | MAIL DATE | DELIVERY MODE |
|--|------------|---------------|
| 3 MONTHS | 04/06/2007 | PAPER |

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

| | | | |
|------------------------------|--------------------------------------|------------------------------------|--|
| Office Action Summary | Application No. 10/743,239 | Applicant(s) HALL ET AL. | |
| | Examiner Ana M. Fortuna | Art Unit 1723 | |

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 February 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-38 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13, 15-38 is/are rejected.
- 7) ☒ Claim(s) 14 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. Claims 1-13, 15-38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (US 6,790,934), or Johnson in view of Caringi et al (US 6,235,934)(hereinafter Caringi).

Johnson et al teach limitations of claims 1, 22, 23, 31, 18, 34, 27, 35 are disclosed in patent '934, which teach the processing of a medium containing guanidine compounds as catalyst in the purification of aromatic polyether (abstract column 2, lines 35-59, column 8, lines 24-43). The catalyst is extracted from the solution by adsorption, ion exchange, etc, the solution resulting from a filtrate of a polymer containing media including the catalyst, e.g. a guanidine compound (HEG).

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The polymer purification process removes solid particles by filtration, and further remove the guanidine compound or catalyst by carbonaceous adsorbent or clay (see column 18, lines 22-68, 13, column 19, lines 1-3, lines 27-68, and column 20, lines 1-52). The later reference also teaches, washing the catalyst with water and separating the catalyst (guanidine) in water by distillation or other conventional separation processes (column 18, first paragraph).

It is clear from reference '934 that catalyst can be separated by distillation or by ion exchange or sorption in a carbonaceous or clay material, as disclosed (see column 20 second paragraph). It would have been obvious to one skilled in the art at the time this invention was made to remove the catalyst (HEG), either from aqueous or a polymer solvent mixture, e.g from a reaction medium produced during aromatic polyether production, which includes the resulting composition containing salts and the catalysts, by contact with ion exchange or adsorbent material, such as, clay and carbonaceous adsorbents, which are disclosed in '934 as capable of retaining the catalyst. The skilled artisan reviewing the teaching of '934, can produce an aqueous solution containing the guanidine catalyst, which is soluble in water, and further alternatively use either ion exchange or adsorbents to remove the guanidine compound (HEG), (see column 20, lines 31-42).

The guanidine compounds corresponding to the formulas of claims 2-3, and compounds listed in claim 22 and 31, are listed in '934 (see column 8, lines 28-42). *As to claim 4, the process of '934 teaches removing both types of guanidine compounds or catalysts (see column 20, second paragraph, and column 21, lines 1-29).*

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For claim 5, 16, 17, see '934 (column 33, table 23).

For claims 6-8, and 23-25, 32-33, 34 see '934 (table 17, column 31, and 24, and column 20, second paragraph).

The absorbent as claimed in claims 9-10, 12, 13 are disclosed in '934 (see column 20, lines 8-52).

Regarding claims 19, 28, 36, removal of organic and inorganic is also disclosed in '934, e.g. sodium, and PEG, see example 29 (column 32).

Regarding claims 11, 20-21, 29-30, and 37-38, using the acids in the polyether production process generating the particular compounds, and further separation of the compounds from the process is not disclosed in '934. '934, however, teaches the use of phosphorous acid or carboxylic acids during quenching steps in aqueous medium, which is medium (containing the guanidine compound (catalyst) is treated by the adsorbent (column 9, lines 25-52). It Would have been obvious to one skilled in this art at the time the invention was made to select inorganic acids and/or organic acids within the families suggested in '934, in order to reach to a predetermined salt composition as residual product, which product can be expected by the ordinary skill in the art depending of the selected element of the family, e.g. sodium chloride, sodium phosphate, or sodium acetate is inherently formed in the process of '934. The pH condition of claims 7 and 26 is not disclosed in '934.

Caringi teaches producing hexa-substituted guanidinium compounds form washing aqueous solution form the preparation of polyether imides, the process includes diluting the salt and adjusting the pH to 2-2 by acidifying the aqueous phase (column 2, lines

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35-68, see step G). Adjusting the pH at a value claimed in claims 11 and 26 does not seem to be critical to the process of recovering the guanidine (guanidinium or catalyst) from the process.

Regarding claim 15, the calcinations at the particular temperature is not disclosed in the references above. Reference to Johnson ('934) teaches removing components from the washing process (or aqueous solution from the extraction process, by water evaporation, and crystallization by the application of heat, column 17, second paragraph), a high temperature application depending on the volume of water to be reduced by evaporation it would have been obvious to one skilled in this art at the time the invention was made.

Allowable Subject Matter

4. Claim 14 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Response to Arguments

5. This Office action contains the same rejection as on paper of 12/01/06, which was intended and marked on PTOL-326 as non-final. As requested by Applicant the Action is made non-final.

Applicant's arguments filed 9/31/06 have been fully considered but they are not persuasive. Claim 1, 22, 31, are directed to a single treatment step of passing an aqueous media containing guanidine compound in contact with adsorbent e.g. carbonaceous or clay to remove the guanidine compound. Reference '934 teaches

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guanidine removal by ion exchange (adsorption), and carbonaceous and clay adsorption, as discussed in the office action. Contacting the aqueous medium or from an organic phase, which contains water, by contact with the particular adsorbents seems to be obvious based on the capability of the adsorbents to retain the guanidine compound (HEH). Additional conditions and compositions seem to be inherent of the process of generating the stream containing the guanidine compound, washing the remaining guanidine from the inorganic phase in water, in a process of producing polyethers, which is known in the art and disclosed in '934, and discussed by applicant (see also applicant's specification, page 1, and paragraph [002]). For this reasons the rejection under 103 is maintained, and has been modified to include the discussion of '934 in more detail as in the previous 102 rejection.


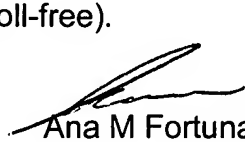
Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ana M. Fortuna whose telephone number is (571) 272-1141. The examiner can normally be reached on 9:30-6:00 M-F.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (571) 272-1151. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should + Business Center (EBC) at 866-217-9197 (toll-free).



Ana M Fortuna
Primary Examiner
Art Unit 1723

AF
April 04, 2007